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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/161,520	09/29/98	SATO	J SON-1450/DIV

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IM62/0229

EXAMINER

POWELL, A

ART UNIT	PAPER NUMBER
1763	9

DATE MAILED: 02/29/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/161,520

Applicant(s)

Sato

Examiner

Powell, A.

Group Art Unit

1763

☒ Responsive to communication(s) filed on 6/24/99

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 12-14 and 16-27 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 12-14 and 16-27 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☒ received in Application No. (Series Code/Serial Number) 08/739,101.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claim 12, 21-22 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al.

Wang et al disclose a method of polishing or planarizing the surface of a work piece by chemical mechanical polishing (CMP) means by applying an aqueous slurry comprising water, submicron solid particles such as boehmite and a basic oxidizing agent, such as a peroxide (col. 1, lines 9-13; col. 3, lines 20-24 and 46-53; col. 4, lines 26-31). Wang et al disclose particles that are more abrasive than silica (col.2, lines 23-31).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13-14 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al in view of Pearson.

Wang et al do not disclose expressly the formation of boehmite and a wafer cleaning by a $\text{NH}_4\text{OH}-\text{H}_2\text{O}_2-\text{H}_2\text{O}$ solution followed by a hydrofluoric acid solution and rinse in pure water.

As to claims 13-14 and 23-24, Pearson discloses a method of making a microcrystalline boehmite product mixing an alumina seed material with water and a less expensive alumina product to form an aqueous slurry that is hydrothermally digested (Fig. 5; col. 3, lines 10-22; col. 4, lines 54-55). An aluminum product reads on sodium aluminate.

The motivation for doing so would have been to provide boehmite particles as abrasives for a CMP slurry.

It would have been obvious to a person of ordinary skill on the art to combine the method of making a boehmite product of Pearson with the CMP method of Wang et al to obtain the invention as specified in claims 13-14 and 23-24.

5. Claims 16-20 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Pearson as applied to claim 13-14 and 23-²⁴~~26~~ above, and further in view of Krussell et al.

Wang et al and Pearson et al disclose an aqueous slurry having submicron boehmite particles formed from alumina seed material.

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Wang et al and Pearson do not disclose expressly a wafer cleaning by a NH_4OH - H_2O_2 - H_2O solution followed by a hydrofluoric acid solution and rinse in pure water.

Krusell et al disclose prior art with steps for wafer cleaning with a NH_4OH - H_2O_2 - H_2O solution followed by a hydrofluoric acid solution and rinse in pure water (col. 1, lines 9-12 and 45-64).

The motivation for doing so would have been to remove residual contaminants from the wafer.

It would have been obvious to combine wafer cleaning of Krusell et al with the CMP method of Wang et al and Pearson to obtain the invention as specified in claims 16-20 and 25-26.

Response to Arguments

6. Applicant's arguments filed 6/24/99 have been fully considered but they are not persuasive.

As to the arguments concerning a slurry having an abrasive in a basic atmosphere, Wang et al disclose basic oxidizing agents used in polishing compositions (col. 3, lines 46-53). Hence, Wang et al discloses both an acidic and basic atmosphere. Therefore, the applicants basic atmosphere does not distinguish over the prior art.

7. As to the arguments concerning the combining of references for the 103 rejection, the use of a boehmite abrasive inherently suggest the fabrication of such a product and the rinsing of a substrate in IC fabrication is standard. Therefore, combining Wang et al with Pearson and Krussell et al is deemed proper.

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Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication should be directed to Alva C. Powell at telephone number (703) 305-0541.

JEFFREY R Lutz
ALVA C POWELL
PRIMARY PATENT EXAMINER
AU 1763